A CRITICAL EXAMINATION OF THE SUPPOSED FOSSIL LINKS BETWEEN MAN AND THE LOWER ANIMALS

BY

DOUGLAS DEWAR, Esq., B.A., F.Z.S.

Victoria Institute, 1, Central Buildings, Westminster, S.W.1

VICTORIA INSTITUTE OR PHILOSOPHICAL SOCIETY
OF GREAT BRITAIN.

COMMITTEE ROOM B,
1, CENTRAL BUILDINGS, WESTMINSTER, LONDON, S.W.1.

March 25, 1935.

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INTRODUCTION.

AS I shall have to mention a number of fossils having strange names and the age of the rock in which each of these was found, a chart has been prepared in order to make it easier to follow my remarks. In the left-hand column of this is set forth the name of every known fossil of man and anthropoid ape. The other columns represent geological periods in order of time, the youngest period being on the left and the oldest on the extreme right. The chart shows only the periods in which anthropoid and human fossils have been found, *viz.*, the Quaternary (Pleistocene) and all the Tertiary except the earliest period—the Eocene. The chart is not drawn to scale. Judging by the thickness of the rocks of each period at the place of their greatest development, the duration of the Pliocene is about three times that of the Pleistocene and the Oligocene a little more than three times, while that of the Miocene is more than five times as great as that of the Pleistocene. As regards the actual duration of time: at present there are no known means of determining this accurately. The estimates are all of the nature of guesses. Some estimate the duration of the Quaternary and Tertiary Periods at about 2 million years, others put the figure at about 80 million! Judging by the amount of sodium in the sea the estimate of 2 million is probably far less inaccurate than that of 80 million years.

The divisions of the Quaternary and Tertiary rocks are primarily based on the percentage of the fossils they contain of shell-fish representing living species. Thus in the Pleistocene from 90 to 100 per cent. of the shell-fish fossils are those of living species, in the Pliocene the percentage is from 50 to 90, being greater in the later part of the period, in the Miocene the percentage is from 20 to 50, and in the Oligocene from 10 to 20. The horizontal line in the cages representing periods indicates the horizon or horizons in which fossils of the genus named in the first column are known to occur. A very short line indicates that only one fossil of the creature has been found, or, if more than one fossil has been found, that all are from the same horizon. Thus, the short line against *Homo heidelbergensis* indicates that only one fossil of it has been found, and this in a rock which is generally supposed to be of earliest Pleistocene time. The long line against *Dryopithecus* indicates that fossils of this genus have been found in several lower Pliocene horizons and many Miocene ones. In the case of *Homo sapiens*, the line is made to end with the lowest Pleistocene because no fossil of *H. sapiens* has been found in any rock universally admitted to be of earlier date than lowest Pleistocene. If, however, those who deem the deposit in which the Castenedolo skull was found to be of early Pliocene date are right, the line representing *Homo sapiens* must be extended as shown by the row of dots. If, as has been suggested, the Calaveras skull be of a still earlier period the line must be even further extended. In the case of species or genera still living, the lines representing the known distribution have been extended a little to the left of the Pleistocene age to represent this.

As some of the fossils we shall have to consider were found in strata containing either no other fossils, or very few, the determination of their date is difficult; in such cases there is often difference of opinion among experts. In the chart the period shown is that accepted by the majority of them. By running the eye up and down the chart in any part of any period it can be seen at a glance what men and apes are known by their fossils to have been in existence at that period of time. For example, the chart shows that three fossils of higher Primates have been found in lower Oligocene deposits but none in those of later Oligocene date. The chart shows only fossils, and not human artefacts, found in the rocks. I may here mention that stone implements, which appear to have been chipped by hand, are abundant in Pliocene deposits, and some occur in Miocene and even in Oligocene rocks.

Most evolutionists believe that man and the living anthropoid apes, chimpanzee, gorilla, orang and gibbon, have all descended from a common ancestor that lived comparatively recently as geologists reckon time—an ancestor that gave rise to diverging lines of descendants leading up to man and the above four anthropoids. If this be so, some individuals on each of these lines of descent must have left fossil remains. Since the appearance of Darwin's *Origin of Species* unceasing search has been made for fossil links between man and his supposed simian ancestor, in full confidence of discovering such. The first discovery, made very shortly after the appearance of the *Origin of Species*—that of a skull of Neanderthal Man (*Homo neanderthalensis*)—was apparently just what was sought—an ancient man more brute-like than modern man. Evolutionists were jubilant. Professor King wrote: "The Neanderthal skull is so eminently simian . . . that I am constrained to believe that the thoughts and desires which once dwelt within it never soared beyond those of the brute." (Keith, *The Antiquity of Man*, p. 189.) This assertion affords an excellent example of the wish being father to the thought. We now know that Neanderthal Man had a brain greater than that of some living races of men, was a skilful artizan and buried his dead. Owing to the belief that man is an evolving animal, subsequent discoveries of remains of modern types of man in deposits much older than those in which Neanderthal Man occur were discredited. Despite the plainest geological evidence, scientific men declined to believe in the great antiquity of the human skull found in

1860 by Professor Ragazzoni at Castenedolo in Italy, associated with Pliocene shells in an undisturbed stratum. Similar treatment was meted out to the Abbeville jaw, the Foxhall jaw and the Olmo skull found in 1863, to the Calaveras skull found in 1866, the Clichy skeleton found in 1868, the Galley Hill skeleton found in 1888 and the Oldoway skeleton found in 1913.

Very different was the treatment of the remains named *Pithecanthropus*, the ape-man, found by Dubois in Java in 1891-92 in deposits of much earlier date than those containing fossils of Neanderthal Man. This was hailed as the long-sought missing link—something midway between man and anthropoid ape. Haeckel wrote (*The Last Link* (1898), p. 26): "*Pithecanthropus erectus* of Dubois is truly a Pliocene remainder of that famous group of catarrhines which were the immediate pithecoid ancestors of man. He is indeed the long-searched for 'missing link,' for which, in 1866, I myself had proposed the hypothetical genus *Pithecanthropus*, species *Alalus*." Then came a series of finds as disconcerting as unexpected. The first was the finding in 1907 of the Mauer jaw (*Homo heidelbergensis* or *Palaeoanthropus*), which was human of far more primitive type than Neanderthal Man—in deposits of about the same age as those that held the remains of *Pithecanthropus*. Still more disconcerting was the finding in 1912 of the Piltdown skull (*Eoanthropus*), clearly human but more brute-like than Neanderthal Man, in deposits of apparently nearly the same time as those that contained the Mauer jaw and *Pithecanthropus*. These finds meant the dethronement of the last named from its position of half-human ancestor of man, because it showed that contemporaneously with it there existed fully formed men. Meanwhile, Neanderthal Man had had to be rejected as ancestral to modern man, because the human beings that immediately succeeded him in the deposits differed from him anatomically to such an extent as to preclude their being his descendants.

In 1921 came the discovery in the Broken Hill mine, associated with the bones of many animals, all save one belonging to living species, of the very primitive type of man known as Rhodesian Man (*Homo rhodesiensis* or *Cyphanthropus*). The last find shows that a very primitive type of man was in existence in quite recent times.

By this time zoologists and anthropologists were compelled to admit that their earlier ideas regarding the evolution of man were incorrect, and they were, in consequence, led to consider that perhaps after all Dr. Reck may have been right in his contention that the modern type of human skeleton unearthed by him at Oldoway in Tanganyika Territory was of very ancient date. In consequence, in 1931, an expedition composed of Drs. Reck and Leakey and four other experts visited the spot to try to settle the age of the skeleton Reck had found. They discovered in the layers immediately below that from which the skeleton had been exhumed, not only tools of human manufacture, but the remains of *Dinotherium*, an extinct genus of the elephant family of which fossils had previously been found in Miocene and Lower Pliocene beds. This discovery must mean either that *Homo sapiens* existed in Lower Pliocene time, or that *Dinotherium* persisted in East Africa long after it had become extinct elsewhere, or that the human skeleton was of later date than the other fossils associated with it. The experts accepted the last alternative. Dr. Leakey writes (*Adam's Ancestors* (1934), p. 204): "We finally arrived at the conclusion that it (the skeleton found by Reck) was not nearly so ancient as the fossil animals or Stone Age implements found in the same deposits, but that it represented a maker of the very much later Aurignacian culture (Middle Pleistocene)."

But a surprise was in store for the investigators. On March 29th, 1932, Dr. Leakey found at Kanam, in East Africa, a human lower jaw associated with the remains of extinct animals, including a tooth of *Dinotherium*, together with implements of Oldowan culture, which "strongly suggest an antiquity greater than that of either the Suffolk Bone Bed or of the base of the Choukoutien deposits." In other words, the jawbone in question is of a date not later than Upper Pliocene. After careful examination of the mandible, Leakey wrote (*loc. cit.*, p. 207): "There are small details—especially the nature of the roots of the teeth as revealed by X-ray—which have made me separate this specimen from *Homo sapiens* and describe it as a new species called *Homo kanamensis*, but it is very closely related to *Homo sapiens* and must be regarded as ancestral to that species." Some authorities, however, consider that the jaw belongs to *Homo sapiens*.

A few days after the Kanam find, fragments of two human skulls were found by Dr. Leakey at Kanjera, near Kanam, in association with bones of animals more recent than those at Kanam and stone tools of Chellean culture (Lower Pleistocene). He considers that these fragments exhibit no character inconsistent with man of modern type.

Thus, even if we assume that *Dinotherium* persisted much later in Africa than in other places, and reject the evidence of the antiquity of the Castenedolo skull (and the only reason for so doing is, as Sir A. Keith says, acceptance means shattering accepted beliefs), we are confronted with the facts that man of modern type (*H. kanamensis*) existed in the Upper Pliocene and *H. sapiens* in Lower Pleistocene time, *i.e.*, long before Neanderthal Man became extinct. These facts exclude from the ancestry of modern man the following creatures, which have been adduced as possible progenitors: *Sinanthropus* (Pekin Man), *Pithecanthropus*, *Australopithecus* (a large-brained fossil anthropoid ape), Heildelberg Man, Piltdown Man, Rhodesian Man, Neanderthal Man and Java Man (*Homo javensis* or *Javanthropus*). It is therefore useless to look for ancestors of man in deposits earlier than the Pliocene. This fact would have been realized seventy years ago had not zoologists been dominated by a theory.

Since this paper was sent to press the antiquity of the Kanam jaw has been questioned. This invariably happens in the case of a fossil of which the apparent age conflicts with the dominant theory; on the other hand, the age of a fossil is almost invariably accepted without challenge when it does not so conflict.

Two years ago a conference of experts at Cambridge accepted the alleged antiquity of the Kanam jaw. Recently a geologist, Professor P. G. H. Boswell, at the suggestion of Dr. Leakey, the discoverer of the jaw, and under the auspices of the Royal Society, visited the locality of the find. He reports that owing to the site being inadequately identified either on the map or on the ground, he could not find it; that a photograph purporting to show the site is inaccurately identified, and that the geological strata of the district are liable to "slipping" and, in consequence, are unreliable for dating the fossils they hold. Therefore, in his opinion, suspicion is cast on the antiquity of the Kanam jaw.

If the stratum in which the jaw and associated fossils of extinct animals were found has in fact slipped, I must confess my inability to understand how this has caused the jaw and the implements associated with it to have slipped down and the extinct animal fossils to have slipped up without leaving traces of a fault. But strange things seem to happen in geological formations. Thus in the asphalt of Rancho La Brea, in California, the skeleton of a woman of modern Indian type was found in close association with that of the extinct sabre-toothed tiger. Experts declare that the human skeleton has sunk to the level occupied by animals of very much earlier date.

If both Leakey and Reck be wrong about the dates of the fossils they found in different localities, it would seem that expert geologists are very liable to be misled; in that case, what assurance have we that the dates assigned to *any* of the fossils mentioned in this paper are even approximately correct?

We have now to consider the fossils of later date than *H. kanamensis*. *Neopithecus* from the Upper Pliocene consists of a 3rd molar tooth. Schlosser named this tooth *Anthropodus* because of its close resemblance to a human tooth; it is, however, smaller and narrower than any known human molar. As its possessor lived very shortly before, if not contemporaneously with, *H. kanamensis*, it cannot have been an ancestor of man.

We now come to the fossils of Lower Pliocene date; these are *Palæopithecus*, two species of *Ramapithecus*, *Sugrivapithecus* and two species of *Dryopithecus*. *Palæopithecus*, from Northern India, consists of a palate holding all the teeth of one side except the incisors. No one deems this genus to be ancestral to man, but some are of opinion that it may be a progenitor of the gorilla. *Ramapithecus*, together with *Sugrivapithecus* and *Brahmapithecus*, was discovered in 1932 by the Yale North India Expedition. Dr. D. G. E. Lewis gives a description of these fossils in the *American Journal of Science* for March, 1934 These three genera are named after Hindu legendary beings. Rama was a Hindu hero, Sugriva is the king of the monkeys in the Ramayana, and Brahma the head of the Trinity of Hindu gods.

Ramapithecus brevirostris consists of the right half of an upper jaw, with two molar and two premolar teeth and the roots of an incisor. *R. hariensis*, which is from a lower horizon, consists of a fragment of the right half of the upper jaw holding two molar teeth. The teeth and jaws of this genus have a more human appearance than have those of *Sivapithecus* and *Dryopithecus*, discussed below, but their discoverer does not consider that the genus, *Ramapithecus*, to which they belong, is ancestral to man. As the teeth of every genus of ape exhibit features peculiar to the genus, it follows, evolution or no evolution, that the teeth of some genera resemble human teeth more closely than those of other genera do.

Sugrivapithecus consists of a left lower jaw bearing two molars, one premolar and roots of a molar, premolar, canine and incisor. The canines and incisors seem to have been small and more human in appearance than those of any other known ape, and the molars, apart from their narrowness, have features found in human molars. The jaw itself has both human and non-human features. The chin is better developed than that of *Sinanthropus*. Although the known parts of the jaw are perhaps more human in appearance than those of any other known ape, its discoverer does not suggest that it belongs to an ancestor of man; it is too specialized to be such.

We have now to consider the genus *Dryopithecus*, of which more fossils have been found than of any other ape. As some authorities regard this genus as a possible ancestor of man and of some of the living anthropoid apes, we must consider it in detail. The two species named above occur in Lower Pliocene deposits. In the Miocene seven or eight other species have been found. Some of these differ so greatly from others that many authorities would split the genus into two or more genera.

Among evolutionists to-day there are two schools of thought: one believes that the human stem branched off from the main anthropoid-ape stock comparatively recently; Gregory and Pilgrim are prominent adherents of this school. According to the other school, the separation of the human from the ape stock took place much farther back, possibly as early as the Eocene. To this school belong Wood-Jones, Sergi and Osborn.

The adherents of each of these schools differ among themselves, and it is scarcely an exaggeration to say that no two authorities are in complete agreement as to the genealogical tree representing man's descent from the apes. Most of those who believe in the recent separation of man from the apes regard *Dryopithecus* as probably ancestral to man; Pilgrim, however, regards *Sivapithecus* as the more probable ancestor.

Let us now examine the claims advanced in favour of *Dryopithecus*. Some of the species of this extinct genus are from Northern India, some from Central Europe, one is from Egypt and one from Kenya. Although unusually numerous, the fossils of *Dryopithecus*, as in the case of those of all anthropoid apes, are very fragmentary and consist merely of teeth or jaws, except a fossil of *Dryopithecus* and one of a gibbon, *Pliohylobates*, both from Eppelsheim in Germany, which consist respectively of a humerus (upper arm-bone) and a femur (thigh-bone). It is very important to bear this in mind. A jaw or a tooth is a very slender foundation upon which to base a theory.

Gregory is of opinion that some progressive group of *Dryopithecus* gave rise to man. He bases this on the patterns of the molar teeth, having very little else to go upon. Of course, no adherent of the other school agrees with Gregory; and Pilgrim, who belongs to the same school as Gregory, considers that *Dryopithecus* is definitely excluded from the line of human ancestry because of the length of the molar teeth and of the symphysis;

i.e. the part of the lower jaw where the two halves meet in the middle.

Since Pilgrim expressed this opinion, *Dryopithecus leakii* was found in Kenya. Of this fossil, Sir Arthur Keith writes (*Morning Post*, August 4th, 1932): "I would not say that this is the long-sought ancestor of man and apes. He is too anthropoid in his character. The new discovery appears to be a definite link between the Chimpanzee and the Gorilla." The opinion expressed in the last sentence is shown to be incorrect by the recent find of the fossil *Proconsul*, which, though of earlier date than *D. leakii*, is definitely a Chimpanzee.

In Upper Miocene deposits have been found, in addition to six species of *Dryopithecus*, fossils of the following genera of anthropoid apes: *Pliopithecus*, *Hylopithecus*, *Griphopithecus* *Palæosimia*, *Brahmapithecus* and *Sivapithecus*.

Pliopithecus, represented by a lower jaw from France, and *Hylopithecus* from Northern India and *Griphopithecus* from Europe, each represented by a single molar tooth, are clearly gibbons, and there is no question of their being ancestral to man. *Palæosimia*, consisting of a single molar tooth from Northern India, is likewise excluded, because, as its name implies, it is a kind of orang. Some deem the genus to be an ancestor of the living orang.

Brahmapithecus, also from Northern India, consists of the left half of a lower jaw bearing two molar teeth, and roots of a molar and premolar. The discoverer, Dr. J. Lewis, is of opinion (*loc. cit.*) that it "has affinities with *Dryopithecus*, and was probably derived from a common stock. It may very well lie near to the stem which leads to the hominidæ proper."

All the known fossils of *Sivapithecus* (named after the Hindu god Siva) are from Northern India. Dr. Pilgrim divides them into four species—*S. indicus*, of which only one molar and one premolar tooth are known; *S. himalayensis*, of which the greater part of a lower jaw has been found; *S. orientalis*, of which the greater part of the lower jaw is known; and *S. Middlemissi*, of which only two molar teeth have been found.

Pilgrim deems (*Palæontologia Indica*, 1927) *Sivapithecus* to be "the most likely human ancestor at present known to us." When he made this assertion he, in common with most zoologists, believed that man of modern type did not exist before the Pleistocene, for he wrote (*op. cit.*): "The changes which in the human line, according to hypothesis, have taken place since the Lower

Pliocene are so radical and profound that it would be rash to deny merely from a consideration of the muzzle and teeth that any single Miocene ape could not have been the ancestor which we now seek." We now know that, if such radical changes did, in fact, take place, these must have been effected between the Lower and Upper Pliocene. Pilgrim admits that the known parts of *Sivapithecus* differ greatly from those of man; the changes, he assumes, include the inward shifting of the canine and the front pre-molar and the contraction of the front portion of the muzzle. Few zoologists, even of the school to which Pilgrim belongs, accept his view that *Sivapithecus* was perhaps the ancestor of man. Professor Gregory and Sir Arthur Keith certainly do not.

Let me here say that those who are of opinion that man is descended from a primitive *Dryopithecus* or *Sivapithecus* stock admit that their opinions cannot be substantiated until more complete fossil evidence becomes available. The recent discovery of *Homo kanamensis* is, of course, very unfavourable to these opinions, shortening as it does the time interval between man and these supposed ancestors.

We now come to the Lower Miocene fossils; these consist of a species of *Dryopithecus*, *Pliohylobates* and three anthropoid apes recently found in Kenya by Dr. A. T. Hopwood, which he has named *Limnopithecus*, *Xenopithecus* and *Proconsul*. We have already discussed the genus *Dryopithecus*. *Prohylobates*, from Egypt, where the *Dryopithecus* species was also found, is, as its name indicates, a gibbon, so there is no question of it being ancestral to man.

Limnopithecus consists of part of the left jaw bearing three cheek teeth and part of the right jaw with two of these teeth. Hopwood believes the possessor of these jaws to be allied, but not ancestral, to the gibbon and not an ancestor of man.

Xenopithecus consists of part of the left upper jaw bearing three molars. Hopwood regards this genus as a peculiar form of anthropoid ape not ancestral to man.

Proconsul consists of a left upper jaw with the teeth and a broken lower jaw containing most of the teeth. Hopwood considers that this genus is definitely an ancestor of the living chimpanzee.

This last discovery is interesting because we now have evidence of the existence in the Lower Miocene of the chimpanzee and the gibbon and probably the orang (*Palæsimia*) in the Upper

Miocene. This seems to dispose of the notion that either of the later forms *Dryopithecus* or *Sivapithecus* was the common ancestor of the anthropoid apes and man. As the evolutionist deems the teeth of man to be more primitive than those of the living anthropoid apes, and the latter had separated from the main stem by the Miocene, he must, if he be logical, expect to find both the gorilla and man also so separated by the Miocene. So far no fossils of the gorilla have been found. As regards man, unless the Calaveras skull and the Castenedolo remains be of earlier date, no fossil has been found earlier than the Upper Pliocene, but what many regard as human artefacts have been found in Miocene deposits in several localities, and even in Oligocene beds in Belgium; and, as man is the only known creature who manufactures such things, the discovery of fossils representing man in Miocene deposits should cause no surprise; indeed, the Calaveras skull may be of Miocene Age. In the Oligocene only three fossils which can be definitely assigned to the anthropoid group have been found, all in the Lower Oligocene of Egypt. These are named *Propliopithecus*, *Parapithecus*, and *Moeropithecus*.

Propliopithecus consists of half a lower jaw with the teeth. Its possessor seems to have been an anthropoid ape of moderate size. Gregory deems it to be the progenitor of both man and the anthropoid apes; Sergi is of opinion that it is the ancestor of man but not of the apes, because he considers the symphysis of the jaw to be quasi-human; Keith regards *Propliopithecus* as the ancestor of only the gibbons; Le Gros Clark thinks it is related to the immediate ancestor of the gibbons, but not an actual ancestor of either man or any living ape. This is typical of the difference of opinion that occurs everywhere among zoological experts.

Parapithecus, from the same deposit as *Propliopithecus*, likewise consists of a lower jaw, which is considered more primitive than *Propliopithecus*. Most authorities regard it as ancestral to neither man nor the living anthropoid apes. *Moeropithecus*, found in association with *Parapithecus*, consists of two molar teeth. It is allied to the latter.

From the Eocene, apart from lemur-like and tarsier-like fossils, there is only the single molar tooth known as *Pondaungia* from the Upper Eocene of Burma. Many doubt that the tooth is that of a Primate; in any case no one regards it as pertaining to an ancestor of *Propliopithecus*, *Moeropithecus* or *Parapithecus*.

Between these last and all the later Primates there is, to quote Pilgrim (*loc. cit.*, p. 15), "a developmental gap, which Gregory in *The Origin and Development of Human Dentition* has not been able to fill."

The above are all the fossils that have been adduced as possible ancestors of man. To-day no one having any knowledge of anatomy dare assert positively that any of them is such an ancestor. Sir Arthur Keith does not place any of them in the direct line of man's ancestry in the diagram representing his view of human evolution in his *New Discoveries Relating to the Antiquity of Man.*

From the foregoing, it is apparent that the known Primate fossils furnish no evidence against the view that man has no pre-human ancestors, that he was specially created.

This, however, does not prevent Sir Arthur Keith making the following assertion:

"If we could summon back to the world of to-day all the extinct kinds of man and ape which have flourished and passed away during the three last great geological ages and marshal them in serried ranks according to the respective periods at which they lived, we should have under our eyes an unbroken series of forms linking the brain of the lowest ape to that of the highest man." (*Darwinism and What it Implies*, p. 5.)

A more unscientific statement than this it would be difficult to find. It assumes, the truth of the evolution theory, the recent separation of man from simian stock, the existence in comparatively recent times of scores of kinds of ape of which not a single fossil has been found, that during the middle Tertiary the varieties of apes were so many as to render the world a veritable monkey house, that only a tiny fraction of this great medley of apes have left fossil remains, and, strange to say, the remains that have been found happen to include none of the many links between the apes and man.

Even less scientific were some of the statements of Sir A. Keith made in an interview on January 15th, 1935 (reported in *The Daily Telegraph* of January 16th, 1935), relating to Sir Ambrose Fleming's statement in his Presidential Address to the Victoria Institute that the evolution theory is the product of the imagination.

In the course of this interview, Sir A. Keith said: "I hesitate to set up against his opinions other views which I know to be correct." Here the word "know" seems to have been incorrectly used instead of "believe firmly," or "am convinced." If Sir Arthur Keith *knows* that man is descended from an animal, the least he can do is to name the creature.

Again, he said the human remains found in caves on Mount Carmel are "certainly 100,000 years old." He ought to furnish the proof that gives this figure its certainty. In view of the amount of sodium in the oceans, the colossal figures usually given of the age of the earth ought not to be accepted until it can be shewn by what means the sea has ridded itself of the greater part of the sodium which must have been carried into it by the rivers (*vide Trans. Vict. Inst.*, vol. lxv (1933), pp. 26-37).

Further, Sir A. Keith asserted "There is no evidence whatever of any single person having been dead and then brought to life." He ought to have said "no evidence whatever of a kind I am able to accept." The Bible contains evidence. Sir A. Keith, disagreeing with Paley, may deem this had evidence; but, nevertheless, it remains evidence.

He also said "Darwin's proof of evolution, announced in the *Descent of Man*, over 60 years ago, was so conclusive that no biologist since has been able to disprove it." This brief sentence contains two mistakes: Darwin did not *prove* that man evolved from an ape-like creature; he brought together a number of facts which he interpreted as denoting such descent. To say that no biologist has since been able to overthrow Darwin's argument is to ignore the great works of L. Vialleton, for many years Professor of Comparative Anatomy at Montpelier, *viz.*, his *Morphologie Generale* (1925), and *L'Origine des Êtres Vivants; L'Illusion transformiste.*

To treat certain opinions as proof and to ignore all other opinions may be excellent propaganda but it is certainly not science.

We, as members of a philosophical body, take the Primat fossils as we find them and not as Sir Arthur Keith would have them.

Scanty though the fossils of anthropoid apes be, they afford some interesting information and raise some difficult questions. They tell us that formerly the anthropoid apes and mankind exhibited more diversity than they now do. This does not accord well with the notion that man and the existing anthropoid apes have all descended from a common ancestor. Moreover, the known human fossils afford no evidence that the brain of man has increased progressively in size. The size of the brain case affords no criterion of the age of a human fossil; it would seem that formerly big-brained and small-brained men lived contemporaneously as they do to-day.

One question that arises as the result of the survey of the higher Primate fossils is: why have so many apparently unassailable forms become extinct—*Sinanthropus*, *Pithecanthropus*, *Dryopithecus*, *Sivapithecus*, etc.? Were they destroyed by some great catastrophe? Primates are not the only group in which many forms have become extinct; other examples are afforded by the giant South American sloths, and many elephants, rhinoceroses, horses, etc.

Another question that arises is why, apart from comparatively modern human fossils, are the great majority of the known higher Primate fossils of so fragmentary nature, consisting as they do of jaws, or teeth ? Moreover, why is it that the great bulk of these have been found either in Northern India, Central Europe, Egypt or East Africa ?

Arboreal habits would account for the comparative scarcity of these fossils, but not for their fragmentary nature and limited distribution. It would seem that most of the higher Primates of which fossils are known, excluding the more recent human fossils, did not live in the localities in which their remains were found ; that the fragments in question were washed from considerable distances to the places in which eventually they were buried. It may be that during the greater part of Tertiary time, men, anthropoid apes and monkeys were confined to temperate highlands and mountains. In that case, most of the sediments laid down in the areas occupied by them would have been eroded out of existence owing to the constant denudation of all deposits not protected by a covering of water. The known fossils afford no conclusive evidence that any Primate genus has become transformed into any other genus. Each new type appears in the rocks having all its characteristics, as if it had migrated from some other locality.

In the present state of our knowledge, all that science can truthfully say is that it knows not when, where or how, man originated.

Harrison and Sons, Ltd., Printers, St. Martin's Lane, London, W.C.2.

DISTRIBUTION IN TIME OF MEN AND ANTHROPOID APES.

Kinds of Men.	Pleistocene.	Pliocene.	Miocene.	Oligocene.
Homo Sapiens Types.				
Homo sapiens	—	....		
H. kanamensis		—		
Other Types.				
H. neanderthalensis	—			
H. rhodesiensis (*Cyphanthropus*)	—			
H. javensis	—			
H. heidelbergensis (*Palaeoanthropus*)	—			
H. dawsoni (*Eoanthropus*)		—		
Anthropoid Apes. **Gibbons.**				
Hylobates	—	—		
Pliopithecus				
Hylopithecus			—	
Pliohylobates			—	
Chimpanzees.			—	
Pan	—	—		
Proconsul			—	
Orangs.				
Simia	—	—		
Palaeosimia			—	
Extinct Apes.				
Sinanthropus	—			
Pithecanthropus	—			
Australopithecus	—			
Neopithecus		—		
Palaeopithecus		—		
Ramapithecus		—		
Sugrivapithecus		—		
Sivapithecus			—	
Griphopithecus			—	
Brahmapithecus			—	
Dryopithecus		—	—	
Xenopithecus			—	
Limnopithecus			—	
Parapithecus				—
Moeropithecus				—
Propliopithecus				—

The Victoria Institute,

or

Philosophical Society of Great Britain,

1, CENTRAL BUILDINGS, WESTMINSTER, S.W. 1.

OBJECTS

THE objects of this Society, founded in the year 1865, are:—

FIRST.—To investigate, in a reverent spirit, important questions of Philosophy and Science, especially those bearing upon Holy Scripture.

SECOND.—To arrange for addresses from men who have themselves contributed to progress in Science and Research, and thus to bring the Members and Associates of the Institute into direct touch with the latest advances.

THIRD.—In humble faith in one Eternal God, Who created all things good, to combat the unbelief now prevalent by directing attention to the evidences of the Divine care for man that are supplied by Science, History, and Religion.

PAPERS.

THE Papers read before and eventually published by the Society are of two kinds:—

1.—Original contributions to knowledge.

2.—Essays on important questions of Philosophy and Science.

The Volume of Transactions accordingly contains under the first head Papers that have been either supplied by experts of acknowledged authority, or have been guaranteed by such experts as suitable to the publications of a learned Society.

In publishing Papers under the second head the Society does not commit itself to the opinions expressed by the authors.

MEETINGS.

THE Meetings, of which due notice is given, are held at 1, Central Buildings, Westminster, S.W. 1, at Half-past Four o'clock in the afternoon, generally on the First and Third Mondays of the Months from December to June inclusive.

The Library, Reading and Writing Room are open, for the use of the Members, from ten till four (Saturdays till twelve).

The Secretary will be glad to meet Members or Associates at the Office by arrangement.